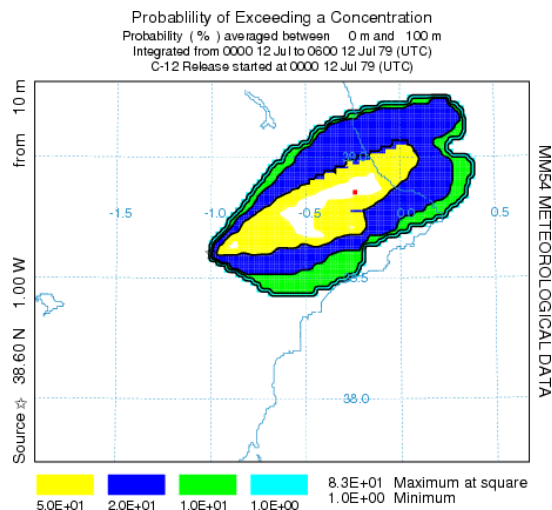
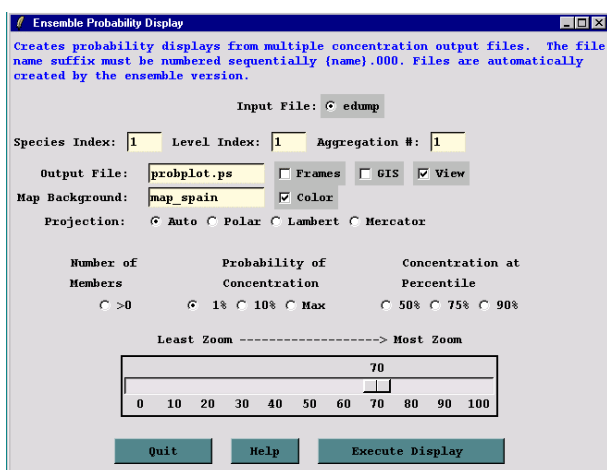


Concentration Ensembles

Instead of creating a single deterministic air concentration simulation, several programs are included that can be used combine multiple HYSPLIT simulations into a single graphic that represents some variation of a concentration probability. The simplest approach is to run the model multiple times varying some parameter. In the first case the model is run with multiple meteorological data. [Each simulation](#) was from 38.6N-1W from 10 m. The first 6-h average concentration result for each meteorological data set is given for data from [NCEP](#), [ECMWF](#), [MM5-108km](#), [MM5-36km](#), [MM5-12km](#), and [MM5-4km](#). To convert these data to a probability format, the binary output files must be named with the suffix .001, .002, etc. Then select “Ensemble” from the “Display Options” menu. Three display options are available: the number of members, the probability of exceeding a concentration, and the concentration at different probability levels. Selecting the 1% of the maximum, results in a probability plot at the 10^{-12} level.



Another possibility is to generate an internal ensemble from a single meteorological data set. This computation is part of HYSPLIT and can be selected as the “Run Ensemble” option from the “Special Simulations” menu tab. In these simulations the meteorological data are perturbed to test the sensitivity of the simulation to the flow field. Twenty-seven members are produced. The ensemble for the 36-km MM5 case is shown here to the right. Ensemble sensitivity can be set in the “advanced configuration menu

